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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/881,151	06/14/2001	Erik Paulsen	00-576	6369

7590

08/04/2003

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EXAMINER

TRAN, THANH Y

ART UNIT

PAPER NUMBER

2841

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/881,151

Applicant(s)

ERIK PAULSEN

Examiner

Thanh Y. Tran

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s) _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: for example, it fails to provide description of the first, second and third planes as recited in claim 1; “an electrical connection”, and “a major plane” in claim 7; and “electrical connections”, “major plane”, “minor plane” in claim 14.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, “first plane”, “second plane”, “third plane”, “signal layer” in claim 1; “an electrical connection”, “a major plane” in claim 7; and “electrical connections”, “major plane”, “minor plane” in claim 14 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant's specification fails to teach the limitation of "the board including a first plane, a second plane, and a third plane disposed between and substantially in parallel to the first and second sides, the second plane being disposed between the first and third planes, the second plane being a signal layer electrically connecting the first set of contacts to the second set of contacts," (emphasis added). No where in the Detailed Description of the Invention of the original specification is there taught any "a first plane", "a second plane" and "a third plane" of the board, and "the second plane being a signal layer" as recited in independent claim 1.

Applicant's specification fails to teach the limitation of "an electrical connection within the converter board extends two dimensionally within a major plane of extension of the converter board, the major plane of extension of the converter board being substantially parallel to major planes of extension of the circuit board and the integrated circuit" (emphasis added) as recited in claim 7.

Applicant's specification fails to teach the limitation of "the electrical connections extend two dimensionally in a major plane of extension of the converter device and extend two dimensionally in a minor plane of extension perpendicular to the major plane of extension of the converter device"(emphasis added) as recited in claim 14.

Applicant's specification fails to teach the limitation of "the first set of contacts being communicatively coupled to the second set of contacts utilizing an intermediate set of contacts, wherein the first set of contacts, the second set of contacts, and the intermediate set of contacts include solder balls" (emphasis added) as recited in claim 20.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 7-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is unclear as to what Applicant means by "an electrical connection within the converter board extends two dimensionally within a major plane of extension of the converter board"? (emphasis added).

Claim 13 is unclear as to what Applicant means by "the second converter board includes the second set of contacts, the first set of contacts being communicatively coupled to the second set of contacts utilizing a third set of contacts, the third converter board, and a fourth set of contacts"? (emphasis added). Does Applicant means that the third converter board includes the second set of contacts? so that the first set of contacts being communicatively coupled to the second set of contacts utilizing a third set of contacts, the third converter board, and a fourth set of contacts.

Claim 14 is unclear as to what Applicant means by "wherein the electrical connections extend two dimensionally in a major plane of extension of the converter device and extend two

Art Unit: 2841

dimensionally in a minor plane of extension **perpendicular to the major plane** of extension of the converter device”? (emphasis added).

Claim 20 is unclear as to what Applicant means by “the first set of contacts being communicatively coupled to the second set of contacts utilizing an intermediate set of contacts, wherein the first set of contacts, the second set of contacts, and the intermediate set of contacts include solder balls”? (emphasis added). The Examiner only see the second set of contact 326 (as shown in figure 3F) is a solder ball. First set of contact 324 (as shown in figure 3F) is not a solder ball.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Gedney et al (U.S. 5,483,421).

With respect claim 1, as best understood, Gedney et al discloses a device (Fig. 5), comprising: a board (24) having a first side and a second side, wherein the first side includes a first set of contacts (30) suitable for electrically contacting an integrated circuit (20) having a first configuration; and the second side includes a second set of contacts (32) suitable for electrically contacting a circuit board (38) having a second configuration, wherein the second set

of contacts (32) are communicatively coupled to the first set of contacts (see element 35); the board including a first plane, a second plane, and a third plane disposed between and substantially in parallel to the first and second sides, the second plane being disposed between the first and third planes, the second plane being a signal layer electrically connecting the first set of contacts to the second set of contacts (see col. 6, lines 32-43), wherein contacts (30) having a function configured in the first configuration are not arranged with contacts (32) having a corresponding function configured in the second configuration, and wherein the set of contacts (30) of the first configuration and the second configuration have a *substantially* similar size (see figure 5, contacts 30 and contacts 32 have *substantially* similar sizes). [It should be noted that: since the third contact (third pad 30) on the first side of the board is communicatively coupled to the second contact (second pad 32) on the second side of the board, it is considered that the contacts (pad 30) having a function configured in the first configuration are not arranged with contacts (pads 32) having a corresponding function configured in the second configuration].

With respect to claims 2 and 9, Gedney et al discloses a device (Fig. 5), wherein a device (24) having the first configuration is unsuitable for direct contact and operation with a device (24) having the second configuration.

With respect to claim 3, Gedney et al discloses a device (Fig. 5) comprising an integrated circuit (20) having a set of contacts (36) arranged in the first configuration and a circuit board (38) having a set of contacts (44) arranged in the second configuration.

With respect to claim 4, Gedney et al discloses a device (Fig. 5) wherein the integrated circuit set of contacts (36) includes at least one contact having a function corresponding to a function of a contact (44) of the circuit board (38), the integrated circuit contact (36) positioned

so that when the integrated circuit (20) is arranged with the circuit board (38), the integrated circuit contact (36) is not positioned for electrical coupling to the contact of the circuit board (38) having a corresponding function.

With respect claim 5, as best understood, Gedney et al discloses a device (Fig. 5) wherein the first plane is a ground layer and the third plane is either a power layer or a ground layer (see col. 6, lines 32-43).

With respect to claim 6, Gedney et al discloses a device (Fig. 5) wherein the first set of contacts (30) is electrically connected over an electrical connection (see elements 34 or 35) to the second set of contacts (32).

With respect to claim 7, as best understood, Gedney et al discloses an apparatus (Fig. 5), comprising: an integrated circuit (20) including a set of contacts (36), wherein the integrated circuit set of contacts (36) is suitable for operation in a first configuration, the first configuration having an arrangement of contacts (36) and corresponding functions of arranged integrated circuit contacts (36); a circuit board (38) including a set of contacts (30), wherein the circuit board set of contacts (30) is suitable for operation in a second configuration, the second configuration having an arrangement of contacts (30) and corresponding functions of arranged circuit board contacts (30), wherein the contacts (30) of the second configuration are situated to correspond to the contacts (36) of the first configuration of the integrated circuit (20), and arrangement of functions of the contacts (30) of the second configuration does not correspond to arrangement of functions of the contacts (36) of the first configuration [it should be noted that: since the second and fifth contacts (36) of the first configuration are not coupled to the second and fifth contacts (30) of the second configuration, it is considered that arrangement of functions

Art Unit: 2841

of the contacts (30) of the second configuration does not correspond to arrangement of functions of the contacts (36) of the first configuration]; and a device (24) disposed between the integrated circuit (20) and the circuit board (38), wherein the converter (24) includes a first set of contacts (30) suitable for contacting the integrated circuit (20) having the first configuration, and a second set of contacts (32) suitable for contacting the circuit board (38) having the second configuration, wherein the first set of contacts (30) is communicatively coupled to the second set of contacts (32) (see elements 34 and 35) and wherein contacts (30) having a function configured in the first configuration are not arranged with contacts (32) having a corresponding function configured in the second configuration [it should be noted that: since the third contact (pad 30) is coupled to the second contact (second pad 32), not the third pad 32, it is considered that contacts having a function configured in the first configuration are not arranged with contacts having a corresponding function configured in the second configuration], wherein an electrical connection (34 or 35) within the board (24) electrically connecting at least one of the first set of contacts (30) with at least one of the second set of contacts (32).

With respect to claim 8, Gedney et al discloses a device (Fig. 5) wherein contacts (36) of the integrated circuit (20) having a function configured in the first configuration are not arranged with contacts (44) of the circuit board (44) having a corresponding function configured in the second configuration.

With respect to claim 10, Gedney et al discloses a device (Fig. 5) wherein the first set of contacts (30) is disposed to the second set of contacts (32) as at least one of opposing sides of the device (24) and sharing a side of the device (24).

Claim 11 recites limitations similar to claim 4. Therefore, it is rejected for the same reasons.

With respect to claim 12, Gedney et al discloses a device (Fig. 5) wherein the device (24) includes a first board (26) and a second board (as labeled in figure 5).

With respect to claim 13, as best understood, Gedney et al discloses an apparatus (Fig. 5) further comprising a third board (28), wherein the first board (26) includes the first set of contacts (30) and the third board (see “second board” as labeled in figure 5) includes the second set of contacts, wherein the first set of contacts (30) being communicatively coupled to the second set of contacts (32) utilizing a third set of contacts (as labeled in figure 5), the third board (28), and a fourth set of contacts (as labeled in figure 5).

With respect to claim 14, as best understood, Gedney et al discloses an apparatus (Fig. 5), comprising: an integrated circuit (20) including a set of contacts (36), wherein the integrated circuit set of contacts (36) is suitable for operation in a first configuration, the first configuration having an arrangement of contacts (36) and corresponding functions of arranged integrated circuit contacts (36); a circuit board (38) including a set of contacts (44), wherein the circuit board set of contacts (44) is suitable for operation in a second configuration, the second configuration having an arrangement of contacts (44) and corresponding functions of arranged circuit board contacts (44), wherein the contacts (44) of the second configuration are situated to correspond to the contact (36) of the first configuration of the integrated circuit (20), and arrangement of functions of the contacts (44) of the second configuration does not correspond to arrangement of functions of the contacts (36) of the first configuration; and a device (24) disposed between the integrated circuit (20) and the circuit board (38), wherein the device (24)

Art Unit: 2841

includes a first set of contacts (30) suitable for contacting the integrated circuit (20) having the first configuration and a second set of contacts (32) suitable for contacting the circuit board (38) having the second configuration, the first set of contacts (30) electrically coupled to the second set of contacts (32) via electrical connections (see elements 34, 35), wherein contacts (30) having a function configured in the first configuration are not arranged with contacts (32) having a corresponding function configured in the second configuration [it should be noted that: since the third contact (third pad 30) on the first side of the board (24) is communicatively coupled to the second contact (second pad 32) on the second side of the board (24), it is considered that the contacts (pad 30) having a function configured in the first configuration are not arranged with contacts (pads 32) having a corresponding function configured in the second configuration].

With respect to claim 15, figure 5 of Gedney et al shows an integrated circuit (20) configured for contacting the first set of contacts (30) of the device (24) includes at least one contact (30) positioned so as to be unsuitable for direct contact and operation with the circuit board (38).

Claim 16 recites limitations similar to claim 2. Therefore, it is rejected for the same reasons.

Claim 17 recites limitations similar to claim 10. Therefore, it is rejected for the same reasons.

Claim 18 recites limitations similar to claim 1. Therefore, it is rejected for the same reasons.

Claim 19 recites limitations similar to claim 12. Therefore, it is rejected for the same reasons.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gedney et al (U.S. 5,483,421).

With respect to claim 20, as best understood, Gedney et al discloses an apparatus (Fig. 5), wherein the first board (26) includes the first set of contacts (30). Gedney et al does not teach a second board includes the second set of contacts, wherein the second set of contacts include solder balls. The Examiner takes Official Notice that: it is known to provide a second board of an apparatus with a second set of contacts, wherein the second set of contacts include solder ball. Thus, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the second board of Gedney et al by including a set of contacts including solder ball for electrically attaching between the two interconnect boards.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kyougoku et al (U.S. 5,995,379) teaches relevant prior art to the invention.

Art Unit: 2841


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Y. Tran whose telephone number is (703) 305-4757. The examiner can normally be reached on Monday through Thursday and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on (703) 308-3121. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

TYT

A handwritten signature in black ink, appearing to read 'D. Martin', with a stylized flourish at the end.

**DAVID MARTIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**